

## **AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

90. (Previously Presented) A method of detecting HIV-2 retrovirus nucleic acid in a biological sample, said method comprising:

a) contacting said sample with an HIV-2 specific probe under hybridization conditions selected from the group consisting of hybridization conditions of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe, wherein said probe comprises an HIV-2 nucleic acid molecule, which hybridizes to HIV-2ROD genomic DNA under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe;

b) washing the resulting hybrid under conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe; and

c) detecting said hybrid.

91. (Currently Amended) The method of any one of claims 90, 110, 111, and 112, wherein said probe comprises a cDNA or a fragment thereof.

92. (Currently Amended) A method of detecting HIV-2 retrovirus nucleic acid in a biological sample, said method comprising:

a) contacting said sample with an HIV-2 specific probe under hybridization conditions selected from the group consisting of hybridization conditions of

42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe,

wherein said probe comprises an HIV-2 nucleic acid molecule obtained from nucleotides 1-380 of the U3/R region of HIV-2, nucleotides 1-1566 of the *gag* gene of HIV-2, nucleotides 1114-1524 of the *gag* gene, nucleotides 1-405 of the *gag* gene, nucleotides 406-1155 of the *gag* gene, or nucleotides 1-2673 of the *env* gene of HIV-2 or a fragment thereof, and

wherein said probe hybridizes to HIV-2ROD genomic DNA under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe;

b) washing the resulting hybrid under conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe; and

c) detecting said hybrid.

93. (Previously Presented) The method of any one of claims 92 and 113, wherein said probe is obtained from the following sequence:

GTGGAAGGCG	AGACTGAAAG	CAAGAGGAAT	ACCATTTAGT	TAAAGGACAG
GAACAGCTAT	ACTTGGTCAG	GGCAGGAAGT	AACTAACAGA	AACAGCTGAG
ACTGCAGGGA	CTTTCCAGAA	GGGGCTGTAA	CCAAGGGAGG	GACATGGGAG
GAGCTGGTGG	GGAACGCCTC	ATATTCTCTG	TATAATATAC	CCGCTGCTTG
CATTGTACTT	CAGTCGCTCT	GCGGAGAGGC	TGGCAGATTG	AGCCCTGGAG
GATCTCTCCA	GCACTAGACG	GATGAGCCTG	GGTGCCCTGC	TAGACTCTCA
CCAGCACTTG	GCCGGTGCTG	GCAGACGGCC	CCACGCTTGC	CTGCTTAAAA
ACCTTCCTTA	ATAAAGCTGC	AGTAGAAGCA		

94. (Previously Presented) The method of any one of claims 92 and 113,

wherein said probe encodes the following amino acid sequence:

Met Gly Ala Arg Asn Ser Val Leu Arg Gly Lys Lys Ala Asp Glu Leu Glu Arg Ile Arg Leu  
Arg Pro Gly Gly Lys Lys Lys Tyr Arg Leu Lys His Ile Val Trp Ala Ala Asn Lys Leu Asp  
Arg Phe Gly Leu Ala Glu Ser Leu Leu Glu Ser Lys Glu Gly Cys Gln Lys Ile Leu Thr Val  
Leu Asp Pro Met Val Pro Thr Gly Ser Glu Asn Leu Lys Ser Leu Phe Asn Thr Val Cys  
Val Ile Trp Cys Ile His Ala Glu Glu Lys Val Lys Asp Thr Glu Gly Ala Lys Gln Ile Val Arg  
Arg His Leu Val Ala Glu Thr Gly Thr Ala Glu Lys Met Pro Ser Thr Ser Arg Pro Thr Ala  
Pro Ser Ser Glu Lys Gly Gly Asn Tyr Pro Val Gln His Val Gly Gly Asn Tyr Thr His Ile Pro  
Leu Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Leu Val Glu Glu Lys Lys Phe Gly Ala Glu  
Val Val Pro Gly Phe Gln Ala Leu Ser Glu Gly Cys Thr Pro Tyr Asp Ile Asn Gln Met Leu  
Asn Cys Val Gly Asp His Gln Ala Ala Met Gln Ile Ile Arg Glu Ile Ile Asn Glu Glu Ala Ala  
Glu Trp Asp Val Gln His Pro Ile Pro Gly Pro Leu Pro Ala Gly Gln Leu Arg Glu Pro Arg  
Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Val Glu Glu Gln Ile Gln Trp Met Phe Arg Pro  
Gln Asn Pro Val Pro Val Gly Asn Ile Tyr Arg Arg Trp Ile Gln Ile Gly Leu Gln Lys Cys Val  
Arg Met Tyr Asn Pro Thr Asn Ile Leu Asp Ile Lys Gln Gly Pro Lys Glu Pro Phe Gln Ser  
Tyr Val Asp Arg Phe Tyr Lys Ser Leu Arg Ala Glu Gln Thr Asp Pro Ala Val Lys Asn Trp  
Met Thr Gln Thr Leu Leu Val Gln Asn Ala Asn Pro Asp Cys Lys Leu Val Leu Lys Gly  
Leu Gly Met Asn Pro Thr Leu Glu Glu Met Leu Thr Ala Cys Gln Gly Val Gly Gly Pro Gly  
Gln Lys Ala Arg Leu Met Ala Glu Ala Leu Lys Glu Val Ile Gly Pro Ala Pro Ile Pro Phe Ala  
Ala Ala Gln Gln Arg Lys Ala Phe Lys Cys Trp Asn Cys Gly Lys Glu Gly His Ser Ala Arg  
Gln Cys Arg Ala Pro Arg Arg Gln Gly Cys Trp Lys Cys Gly Lys Pro Gly His Ile Met Thr  
Asn Cys Pro Asp Arg Gln Ala Gly Phe Leu Gly Leu Gly Pro Trp Gly Lys Lys Pro Arg Asn  
Phe Pro Val Ala Gln Val Pro Gln Gly Leu Thr Pro Thr Ala Pro Pro Val Asp Pro Ala Val  
Asp Leu Leu Glu Lys Tyr Met Gln Gln Gly Lys Arg Gln Arg Glu Gln Arg Glu Arg Pro Tyr  
Lys Glu Val Thr Glu Asp Leu Leu His Leu Glu Gln Gly Glu Thr Pro Tyr Arg Glu Pro Pro  
Thr Glu Asp Leu Leu His Leu Asn Ser Leu Phe Gly Lys Asp Gln.

95. (Previously Presented) The method of any one of claims 92 and 113,

wherein said probe encodes the following amino acid sequence:

Arg Lys Ala Phe Lys Cys Trp Asn Cys Gly Lys Glu Gly His Ser Ala  
Arg Gln Cys Arg Ala Pro Arg Arg Gln Gly Cys Trp Lys Cys Gly Lys  
Pro Gly His Ile Met Thr Asn Cys Pro Asp Arg Gln Ala Gly Phe Leu  
Gly Leu Gly Pro Trp Gly Lys Lys Pro Arg Asn Phe Pro Val Ala Gln  
Val Pro Gln Gly Leu Thr Pro Thr Ala Pro Pro Val Asp Pro Ala Val  
Asp Leu Leu Glu Lys Tyr Met Gln Gln Gly Lys Arg Gln Arg Glu Gln  
Arg Glu Arg Pro Tyr Lys Glu Val Thr Glu Asp Leu Leu His Leu Glu  
Gln Gly Glu Thr Pro Tyr Arg Glu Pro Pro Thr Glu Asp Leu Leu His  
Leu Asn Ser Leu Phe Gly Lys Asp Gln.

96. (Previously Presented) The method of any one of claims 92 and 113,  
wherein said probe encodes the following amino acid sequence:

Met Gly Ala Arg Asn Ser Val Leu Arg Gly Lys Lys Ala Asp Glu Leu  
Glu Arg Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Leu Lys  
His Ile Val Trp Ala Ala Asn Lys Leu Asp Arg Phe Gly Leu Ala Glu  
Ser Leu Leu Glu Ser Lys Glu Gly Cys Gln Lys Ile Leu Thr Val Leu  
Asp Pro Met Val Pro Thr Gly Ser Glu Asn Leu Lys Ser Leu Phe Asn  
Thr Val Cys Val Ile Trp Cys Ile His Ala Glu Glu Lys Val Lys Asp  
Thr Glu Gly Ala Lys Gln Ile Val Arg Arg His Leu Val Ala Glu Thr  
Gly Thr Ala Glu Lys Met Pro Ser Thr Ser Arg Pro Thr Ala Pro Ser  
Ser Glu Lys Gly Gly Asn Tyr.

97. (Previously Presented) The method of any one of claims 92 and 113,  
wherein said probe encodes the following amino acid sequence:

Pro Val Gln His Val Gly Gly Asn Tyr Thr His Ile Pro Leu Ser Pro  
Arg Thr Leu Asn Ala Trp Val Lys Leu Val Glu Glu Lys Lys Phe Gly  
Ala Glu Val Val Pro Gly Phe Gln Ala Leu Ser Glu Gly Cys Thr Pro  
Tyr Asp Ile Asn Gln Met Leu Asn Cys Val Gly Asp His Gln Ala Ala  
Met Gln Ile Ile Arg Glu Ile Ile Asn Glu Glu Ala Ala Glu Trp Asp  
Val Gln His Pro Ile Pro Gly Pro Leu Pro Ala Gly Gln Leu Arg Glu  
Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Val Glu Glu Gln  
Ile Gln Trp Met Phe Arg Pro Gln Asn Pro Val Pro Val Gly Asn Ile  
Tyr Arg Arg Trp Ile Gln Ile Gly Leu Gln Lys Cys Val Arg Met Tyr  
Asn Pro Thr Asn Ile Leu Asp Ile Lys Gln Gly Pro Lys Glu Pro Phe  
Gln Ser Tyr Val Asp Arg Phe Tyr Lys Ser Leu Arg Ala Glu Gln Thr  
Asp Pro Ala Val Lys Asn Trp Met Thr Gln Thr Leu Leu Val Gln Asn  
Ala Asn Pro Asp Cys Lys Leu Val Leu Lys Gly Leu Gly Met Asn Pro  
Thr Leu Glu Glu Met Leu Thr Ala Cys Gln Gly Val Gly Gly Pro Gly  
Gln Lys Ala Arg Leu Met Ala Glu Ala Leu Lys Glu Val Ile Gly Pro  
Ala Pro Ile Pro Phe Ala Ala Ala Gln Gln.

98. (Previously Presented) The method of any one of claims 92 and 113,  
wherein said probe encodes the following amino acid sequence:

Met Met Asn Gln Leu Leu Ile Ala Ile Leu Leu Ala Ser Ala Cys Leu  
Val Tyr Cys Thr Gln Tyr Val Thr Val Phe Tyr Gly Val Pro Thr Trp  
Lys Asn Ala Thr Ile Pro Leu Phe Cys Ala Thr Arg Asn Arg Asp Thr  
Trp Gly Thr Ile Gln Cys Leu Pro Asp Asn Asp Asp Tyr Gln Glu Ile  
Thr Leu Asn Val Thr Glu Ala Phe Asp Ala Trp Asn Asn Thr Val Thr  
Glu Gln Ala Ile Glu Asp Val Trp His Leu Phe Glu Thr Ser Ile Lys  
Pro Cys Val Lys Leu Thr Pro Leu Cys Val Ala Met Lys Cys Ser Ser  
Thr Glu Ser Ser Thr Gly Asn Asn Thr Thr Ser Lys Ser Thr Ser Thr

Thr Thr Thr Thr Pro Thr Asp Gln Glu Gln Glu Ile Ser Glu Asp Thr  
 Pro Cys Ala Arg Ala Asp Asn Cys Ser Gly Leu Gly Glu Glu Glu Thr  
 Ile Asn Cys Gln Phe Asn Met Thr Gly leu Glu Arg Asp Lys Lys Lys  
 Gln Tyr Asn Glu Thr Trp Tyr Ser Lys Asp Val Val Cys Glu Thr Asn  
 Asn Ser Thr Asn Gln Thr Gln Cys Tyr Met Asn His Cys Asn Thr Ser  
 Val Ile Thr Glu Ser Cys Asp Lys His Tyr Trp Asp Ala Ile Arg Phe  
 Arg Tyr Cys Ala Pro Pro Gly Tyr Ala Leu Leu Arg Cys Asn Asp Thr  
 Asn Tyr Ser Gly Phe Ala Pro Asn Cys Ser Lys Val Val Ala Ser Thr  
 Cys Thr Arg Met Met Glu Thr Gln Thr Ser Thr Trp Phe Gly Phe Asn  
 Gly Thr Arg Ala Glu Asn Arg Thr Tyr Ile Tyr Trp His Gly Arg Asp  
 Asn Arg Thr Ile Ile Ser Leu Asn Lys Tyr Tyr Asn Leu Ser Leu His  
 Cys Lys Arg Pro Gly Asn Lys Thr Val Lys Gln Ile Met Leu Met Ser  
 Gly His Val Phe His Ser His Tyr Gln Pro Ile Asn Lys Arg Pro Arg  
 Gln Ala Trp Cys Trp Phe Lys Gly Lys Trp Lys Asp Ala Met Gln Glu  
 Val Lys Thr Leu Ala Lys His Pro Arg Tyr Arg Gly Thr Asn Asp Thr  
 Arg Asn Ile Ser Phe Ala Ala Pro Gly Lys Gly Ser Asp Pro Glu Val  
 Ala Tyr Met Trp Thr Asn Cys Arg Gly Glu Phe Leu Tyr Cys Asn Met  
 Thr Trp Phe Leu Asn Trp Ile Glu Asn Lys Thr His Arg Asn Tyr Ala  
 Pro Cys His Ile Lys Gln Ile Ile Asn Thr Trp His Lys Val Gly Arg  
 Asn Val Tyr Leu Pro Pro Arg Glu Gly Glu Leu Ser Cys Asn Ser Thr  
 Val Thr Ser Ile Ile Ala Asn Ile Asp Trp Gln Asn Asn Asn Gln Thr  
 Asn Ile Thr Phe Ser Ala Glu Val Ala Glu Leu Tyr Arg Leu Glu Leu  
 Gly Asp Tyr Lys Leu Val Glu Ile Thr Pro Ile Gly Phe Ala Pro Thr  
 Lys Glu Lys Arg Tyr Ser Ser Ala His Gly Arg His Thr Arg Gly Val  
 Phe Val Leu Gly Phe Leu Gly Phe Leu Ala Thr Ala Gly Ser Ala Met  
 Gly Ala Arg Ala Ser Leu Thr Val Ser Ala Gln Ser Arg Thr Leu Leu  
 Ala Gly Ile Val Gln Gln Gln Gln Gln Leu Leu Asp Val Val Lys Arg  
 Gln Gln Glu Leu Leu Arg Leu Thr Val Trp Gly Thr Lys Asn Leu Gln  
 Ala Arg Val Thr Ala Ile Glu Lys Tyr Leu Gln Asp Gln Ala Arg Leu  
 Asn Ser Trp Gly Cys Ala Phe Arg Gln Val Cys His Thr Thr Val Pro  
 Trp Val Asn Asp Ser Leu Ala Pro Asp Trp Asp Asn Met Thr Trp Gln  
 Glu Trp Glu Lys Gln Val Arg Tyr Leu Glu Ala Asn Ile Ser Lys Ser  
 Leu Glu Gln Ala Gln Ile Gln Gln Glu Lys Asn Met Tyr Glu Leu Gln  
 Lys Leu Asn Ser Trp Asp Ile Phe Gly Asn Trp Phe Asp Leu Thr Ser  
 Trp Val Lys Tyr Ile Gln Tyr Gly Val Leu Ile Ile Val Ala Val Ile  
 Ala Leu Arg Ile Val Ile Tyr Val Val Gln Met Leu Ser Arg Leu Arg  
 Lys Gly Tyr Arg Pro Val Phe Ser Ser Pro Pro Gly Tyr Ile Gln Gln  
 Ile His Ile His Lys Asp Arg Gly Gln Pro Ala Asn Glu Glu Thr Glu  
 Glu Asp Gly Gly Ser Asn Gly Gly Asp Arg Tyr Trp Pro Trp Pro Ile  
 Ala Tyr Ile His Phe Leu Ile Arg Gln Leu Ile Arg Leu Leu Thr Arg  
 Leu Tyr Ser Ile Cys Arg Asp Leu Leu Ser Arg Ser Phe Leu Thr Leu  
 Gln Leu Ile Tyr Gln Asn Leu Arg Asp Trp Leu Arg Leu Arg Thr Ala  
 Phe Leu Gln Tyr Gly Cys Glu Trp Ile Gln Glu Ala Phe Gln Ala Ala  
 Ala Arg Ala Thr Arg Glu Thr Leu Ala Gly Ala Cys Arg Gly Leu Trp  
 Arg Val Leu Glu Arg Ile Gly Arg Gly Ile Leu Ala Val Pro Arg Arg  
 Ile Arg Gln Gly Ala Glu Ile Ala Leu Leu \*\*\* Gly Thr Ala Val Ser  
 Ala Gly Arg Leu Tyr Glu

Tyr Ser Met Glu Gly Pro Ser Ser Arg Lys Gly Glu Lys Phe Val  
Gln Ala Thr Lys Tyr Gly,

wherein \*\*\* indicates a stop codon.

99. (Previously Presented) A method of producing an HIV-2 specific hybridization probe for HIV-2 retrovirus nucleic acid, said method comprising:

a) preparing a nucleic acid insert, which hybridizes to HIV-2ROD genomic DNA under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the insert, 20°C below the melting temperature of the insert, and 3°C below the melting temperature of the insert;

b) introducing the insert into a ~~recombinant cloning~~ vector;

c) introducing said vector into a competent cellular host; and

d) recovering the DNA recombinants.

100. (Currently Amended) The method of any one of claims 99 and 114, wherein said probe comprises a cDNA or a fragment thereof.

101. (Currently Amended) A method of producing an HIV-2 specific hybridization probe for HIV-2 retrovirus nucleic acid, said method comprising:

a) preparing a nucleic acid insert, wherein said insert is obtained from nucleotides 1-380 of the U3/R region of HIV-2, nucleotides 1-1566 of the *gag* gene of HIV-2, nucleotides 1114-1524 of the *gag* gene, nucleotides 1-405 of the *gag* gene, nucleotides 406-1155 of the *gag* gene, or nucleotides 1-2673 of the *env* gene of HIV-2 or a fragment thereof, and wherein said insert hybridizes to HIV-2ROD genomic DNA under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the insert, 20°C below the

melting temperature of the insert, and 3°C below the melting temperature of the insert;

- b) introducing the insert into a recombinant cloning vector;
- c) introducing said vector into a competent cellular host; and
- d) recovering the DNA recombinants.

102. (Previously Presented) The method of any one of claims 101 and 115, wherein said insert is obtained from the following sequence:

GTGGAAGGCG	AGACTGAAAG	CAAGAGGAAT	ACCATTTAGT	TAAAGGACAG
GAACAGCTAT	ACTTGGTCAG	GGCAGGAAGT	AACTAACAGA	AACAGCTGAG
ACTGCAGGGA	CTTTCCAGAA	GGGGCTGTAA	CCAAGGGAGG	GACATGGGAG
GAGCTGGTGG	GGAACGCCTC	ATATTCTCTG	TATAATATAC	CCGCTGCTTG
CATTGTACTT	CAGTCGCTCT	GCGGAGAGGC	TGGCAGATTG	AGCCCTGGAG
GATCTCTCCA	GCACTAGACG	GATGAGCCTG	GGTGCCCTGC	TAGACTCTCA
CCAGCACTTG	GCCGGTGCTG	GCAGACGGCC	CCACGCTTGC	CTGCTTAAAA
ACCTTCCTTA	ATAAAGCTGC	AGTAGAAGCA.		

103. (Currently Amended) The method of claim any one of claims 101 and 115, wherein said insert encodes the following amino acid sequence:

Met Gly Ala Arg Asn Ser Val Leu Arg Gly Lys Lys Ala Asp Glu Leu  
Glu Arg Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Leu Lys  
His Ile Val Trp Ala Ala Asn Lys Leu Asp Arg Phe Gly Leu Ala Glu  
Ser Leu Leu Glu Ser Lys Glu Gly Cys Gln Lys Ile Leu Thr Val Leu  
Asp Pro Met Val Pro Thr Gly Ser Glu Asn Leu Lys Ser Leu Phe Asn  
Thr Val Cys Val Ile Trp Cys Ile His Ala Glu Glu Lys Val Lys Asp  
Thr Glu Gly Ala Lys Gln Ile Val Arg Arg His Leu Val Ala Glu Thr  
Gly Thr Ala Glu Lys Met Pro Ser Thr Ser Arg Pro Thr Ala Pro Ser  
Ser Glu Lys Gly Gly Asn Tyr Pro Val Gln His Val Gly Gly Asn Tyr  
Thr His Ile Pro Leu Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Leu  
Val Glu Glu Lys Lys Phe Gly Ala Glu Val Val Pro Gly Phe Gln Ala  
Leu Ser Glu Gly Cys Thr Pro Tyr Asp Ile Asn Gln Met Leu Asn Cys  
Val Gly Asp His Gln Ala Ala Met Gln Ile Ile Arg Glu Ile Ile Asn  
Glu Glu Ala Ala Glu Trp Asp Val Gln His Pro Ile Pro Gly Pro Leu  
Pro Ala Gly Gln Leu Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr  
Thr Ser Thr Val Glu Glu Gln Ile Gln Trp Met Phe Arg Pro Gln Asn  
Pro Val Pro Val Gly Asn Ile Tyr Arg Arg Trp Ile Gln Ile Gly Leu  
Gln Lys Cys Val Arg Met Tyr Asn Pro Thr Asn Ile Leu Asp Ile Lys  
Gln Gly Pro Lys Glu Pro Phe Gln Ser Tyr Val Asp Arg Phe Tyr Lys  
Ser Leu Arg Ala Glu Gln Thr Asp Pro Ala Val Lys Asn Trp Met Thr

Gln Thr Leu Leu Val Gln Asn Ala Asn Pro Asp Cys Lys Leu Val Leu  
 Lys Gly Leu Gly Met Asn Pro Thr Leu Glu Glu Met Leu Thr Ala Cys  
 Gln Gly Val Gly Gly Pro Gly Gln Lys Ala Arg Leu Met Ala Glu Ala  
 Leu Lys Glu Val Ile Gly Pro Ala Pro Ile Pro Phe Ala Ala Ala Gln  
 Gln Arg Lys Ala Phe Lys Cys Trp Asn Cys Gly Lys Glu Gly His Ser  
 Ala Arg Gln Cys Arg Ala Pro Arg Arg Gln Gly Cys Trp Lys Cys Gly  
 Lys Pro Gly His Ile Met Thr Asn Cys Pro Asp Arg Gln Ala Gly Phe  
 Leu Gly Leu Gly Pro Trp Gly Lys Lys Pro Arg Asn Phe Pro Val Ala  
 Gln Val Pro Gln Gly Leu Thr Pro Thr Ala Pro Pro Val Asp Pro Ala  
 Val Asp Leu Leu Glu Lys Tyr Met Gln Gln Gly Lys Arg Gln Arg Glu  
 Gln Arg Glu Arg Pro Tyr Lys Glu Val Thr Glu Asp Leu Leu His Leu  
 Glu Gln Gly Glu Thr Pro Tyr Arg Glu Pro Pro Thr Glu Asp Leu Leu  
 His Leu Asn Ser Leu Phe Gly Lys Asp Gln.

104. (Previously Presented) The method of any one of claims 101 and 115,  
 wherein said insert encodes the following amino acid sequence:

Arg Lys Ala Phe Lys Cys Trp Asn Cys Gly Lys Glu Gly His Ser Ala  
 Arg Gln Cys Arg Ala Pro Arg Arg Gln Gly Cys Trp Lys Cys Gly Lys  
 Pro Gly His Ile Met Thr Asn Cys Pro Asp Arg Gln Ala Gly Phe Leu  
 Gly Leu Gly Pro Trp Gly Lys Lys Pro Arg Asn Phe Pro Val Ala Gln  
 Val Pro Gln Gly Leu Thr Pro Thr Ala Pro Pro Val Asp Pro Ala Val  
 Asp Leu Leu Glu Lys Tyr Met Gln Gln Gly Lys Arg Gln Arg Glu Gln  
 Arg Glu Arg Pro Tyr Lys Glu Val Thr Glu Asp Leu Leu His Leu Glu  
 Gln Gly Glu Thr Pro Tyr Arg Glu Pro Pro Thr Glu Asp Leu Leu His  
 Leu Asn Ser Leu Phe Gly Lys Asp Gln.

105. (Previously Presented) The method of any one of claims 101 and 115,  
 wherein said insert encodes the following amino acid sequence:

Met Gly Ala Arg Asn Ser Val Leu Arg Gly Lys Lys Ala Asp Glu Leu  
 Glu Arg Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Leu Lys  
 His Ile Val Trp Ala Ala Asn Lys Leu Asp Arg Phe Gly Leu Ala Glu  
 Ser Leu Leu Glu Ser Lys Glu Gly Cys Gln Lys Ile Leu Thr Val Leu  
 Asp Pro Met Val Pro Thr Gly Ser Glu Asn Leu Lys Ser Leu Phe Asn  
 Thr Val Cys Val Ile Trp Cys Ile His Ala Glu Glu Lys Val Lys Asp  
 Thr Glu Gly Ala Lys Gln Ile Val Arg Arg His Leu Val Ala Glu Thr  
 Gly Thr Ala Glu Lys Met Pro Ser Thr Ser Arg Pro Thr Ala Pro Ser  
 Ser Glu Lys Gly Gly Asn Tyr.

106. (Previously Presented) The method of any one of claims 101 and 115,  
 wherein said insert encodes the following amino acid sequence:



Pro Val Gln His Val Gly Gly Asn Tyr Thr His Ile Pro Leu Ser Pro  
 Arg Thr Leu Asn Ala Trp Val Lys Leu Val Glu Glu Lys Lys Phe Gly  
 Ala Glu Val Val Pro Gly Phe Gln Ala Leu Ser Glu Gly Cys Thr Pro  
 Tyr Asp Ile Asn Gln Met Leu Asn Cys Val Gly Asp His Gln Ala Ala  
 Met Gln Ile Ile Arg Glu Ile Ile Asn Glu Glu Ala Ala Glu Trp Asp  
 Val Gln His Pro Ile Pro Gly Pro Leu Pro Ala Gly Gln Leu Arg Glu  
 Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Val Glu Glu Gln  
 Ile Gln Trp Met Phe Arg Pro Gln Asn Pro Val Pro Val Gly Asn Ile  
 Tyr Arg Arg Trp Ile Gln Ile Gly Leu Gln Lys Cys Val Arg Met Tyr  
 Asn Pro Thr Asn Ile Leu Asp Ile Lys Gln Gly Pro Lys Glu Pro Phe  
 Gln Ser Tyr Val Asp Arg Phe Tyr Lys Ser Leu Arg Ala Glu Gln Thr  
 Asp Pro Ala Val Lys Asn Trp Met Thr Gln Thr Leu Leu Val Gln Asn  
 Ala Asn Pro Asp Cys Lys Leu Val Leu Lys Gly Leu Gly Met Asn Pro  
 Thr Leu Glu Glu Met Leu Thr Ala Cys Gln Gly Val Gly Gly Pro Gly  
 Gln Lys Ala Arg Leu Met Ala Glu Ala Leu Lys Glu Val Ile Gly Pro  
 Ala Pro Ile Pro Phe Ala Ala Ala Gln Gln.

107. (Previously Presented) The method of any one of claims 101 and 115,  
 wherein said insert encodes the following amino acid sequence:

Met Met Asn Gln Leu Leu Ile Ala Ile Leu Leu Ala Ser Ala Cys Leu  
 Val Tyr Cys Thr Gln Tyr Val Thr Val Phe Tyr Gly Val Pro Thr Trp  
 Lys Asn Ala Thr Ile Pro Leu Phe Cys Ala Thr Arg Asn Arg Asp Thr  
 Trp Gly Thr Ile Gln Cys Leu Pro Asp Asn Asp Asp Tyr Gln Glu Ile  
 Thr Leu Asn Val Thr Glu Ala Phe Asp Ala Trp Asn Asn Thr Val Thr  
 Glu Gln Ala Ile Glu Asp Val Trp His Leu Phe Glu Thr Ser Ile Lys  
 Pro Cys Val Lys Leu Thr Pro Leu Cys Val Ala Met Lys Cys Ser Ser  
 Thr Glu Ser Ser Thr Gly Asn Asn Thr Thr Ser Lys Ser Thr Ser Thr  
 Thr Thr Thr Thr Pro Thr Asp Gln Glu Gln Glu Ile Ser Glu Asp Thr  
 Pro Cys Ala Arg Ala Asp Asn Cys Ser Gly Leu Gly Glu Glu Glu Thr  
 Ile Asn Cys Gln Phe Asn Met Thr Gly leu Glu Arg Asp Lys Lys Lys  
 Gln Tyr Asn Glu Thr Trp Tyr Ser Lys Asp Val Val Cys Glu Thr Asn  
 Asn Ser Thr Asn Gln Thr Gln Cys Tyr Met Asn His Cys Asn Thr Ser  
 Val Ile Thr Glu Ser Cys Asp Lys His Tyr Trp Asp Ala Ile Arg Phe  
 Arg Tyr Cys Ala Pro Pro Gly Tyr Ala Leu Leu Arg Cys Asn Asp Thr  
 Asn Tyr Ser Gly Phe Ala Pro Asn Cys Ser Lys Val Val Ala Ser Thr  
 Cys Thr Arg Met Met Glu Thr Gln Thr Ser Thr Trp Phe Gly Phe Asn  
 Gly Thr Arg Ala Glu Asn Arg Thr Tyr Ile Tyr Trp His Gly Arg Asp  
 Asn Arg Thr Ile Ile Ser Leu Asn Lys Tyr Tyr Asn Leu Ser Leu His  
 Cys Lys Arg Pro Gly Asn Lys Thr Val Lys Gln Ile Met Leu Met Ser  
 Gly His Val Phe His Ser His Tyr Gln Pro Ile Asn Lys Arg Pro Arg  
 Gln Ala Trp Cys Trp Phe Lys Gly Lys Trp Lys Asp Ala Met Gln Glu  
 Val Lys Thr Leu Ala Lys His Pro Arg Tyr Arg Gly Thr Asn Asp Thr  
 Arg Asn Ile Ser Phe Ala Ala Pro Gly Lys Gly Ser Asp Pro Glu Val  
 Ala Tyr Met Trp Thr Asn Cys Arg Gly Glu Phe Leu Tyr Cys Asn Met  
 Thr Trp Phe Leu Asn Trp Ile Glu Asn Lys Thr His Arg Asn Tyr Ala

Pro Cys His Ile Lys Gln Ile Ile Asn Thr Trp His Lys Val Gly Arg  
 Asn Val Tyr Leu Pro Pro Arg Glu Gly Glu Leu Ser Cys Asn Ser Thr  
 Val Thr Ser Ile Ile Ala Asn Ile Asp Trp Gln Asn Asn Asn Gln Thr  
 Asn Ile Thr Phe Ser Ala Glu Val Ala Glu Leu Tyr Arg Leu Glu Leu  
 Gly Asp Tyr Lys Leu Val Glu Ile Thr Pro Ile Gly Phe Ala Pro Thr  
 Lys Glu Lys Arg Tyr Ser Ser Ala His Gly Arg His Thr Arg Gly Val  
 Phe Val Leu Gly Phe Leu Gly Phe Leu Ala Thr Ala Gly Ser Ala Met  
 Gly Ala Arg Ala Ser Leu Thr Val Ser Ala Gln Ser Arg Thr Leu Leu  
 Ala Gly Ile Val Gln Gln Gln Gln Gln Leu Leu Asp Val Val Lys Arg  
 Gln Gln Glu Leu Leu Arg Leu Thr Val Trp Gly Thr Lys Asn Leu Gln  
 Ala Arg Val Thr Ala Ile Glu Lys Tyr Leu Gln Asp Gln Ala Arg Leu  
 Asn Ser Trp Gly Cys Ala Phe Arg Gln Val Cys His Thr Thr Val Pro  
 Trp Val Asn Asp Ser Leu Ala Pro Asp Trp Asp Asn Met Thr Trp Gln  
 Glu Trp Glu Lys Gln Val Arg Tyr Leu Glu Ala Asn Ile Ser Lys Ser  
 Leu Glu Gln Ala Gln Ile Gln Gln Glu Lys Asn Met Tyr Glu Leu Gln  
 Lys Leu Asn Ser Trp Asp Ile Phe Gly Asn Trp Phe Asp Leu Thr Ser  
 Trp Val Lys Tyr Ile Gln Tyr Gly Val Leu Ile Ile Val Ala Val Ile  
 Ala Leu Arg Ile Val Ile Tyr Val Val Gln Met Leu Ser Arg Leu Arg  
 Lys Gly Tyr Arg Pro Val Phe Ser Ser Pro Pro Gly Tyr Ile Gln Gln  
 Ile His Ile His Lys Asp Arg Gly Gln Pro Ala Asn Glu Glu Thr Glu  
 Glu Asp Gly Gly Ser Asn Gly Gly Asp Arg Tyr Trp Pro Trp Pro Ile  
 Ala Tyr Ile His Phe Leu Ile Arg Gln Leu Ile Arg Leu Leu Thr Arg  
 Leu Tyr Ser Ile Cys Arg Asp Leu Leu Ser Arg Ser Phe Leu Thr Leu  
 Gln Leu Ile Tyr Gln Asn Leu Arg Asp Trp Leu Arg Leu Arg Thr Ala  
 Phe Leu Gln Tyr Gly Cys Glu Trp Ile Gln Glu Ala Phe Gln Ala Ala  
 Ala Arg Ala Thr Arg Glu Thr Leu Ala Gly Ala Cys Arg Gly Leu Trp  
 Arg Val Leu Glu Arg Ile Gly Arg Gly Ile Leu Ala Val Pro Arg Arg  
 Ile Arg Gln Gly Ala Glu Ile Ala Leu Leu \*\*\* Gly Thr Ala Val Ser  
 Ala Gly Arg Leu Tyr Glu  
 Tyr Ser Met Glu Gly Pro Ser Ser Arg Lys Gly Glu Lys Phe Val  
 Gln Ala Thr Lys Tyr Gly,

wherein \*\*\* indicates a stop codon.

108. (Previously Presented) The method of any one of claims 90-107 and 110-115, wherein said probe comprises recombinant nucleic acid.

109. (Previously Presented) The method of claim 108, wherein said recombinant nucleic acid is labeled.

110. (New) A method of detecting HIV-2 retrovirus nucleic acid in a biological sample, said method comprising:

a) contacting said sample with an HIV-2 specific probe under hybridization conditions selected from the group consisting of hybridization conditions of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe, wherein said probe comprises a nucleic acid molecule, which is a fragment of HIV-2 genomic DNA, and wherein said probe hybridizes to the HIV-2ROD genomic DNA deposited with the CNCM as deposit no. I-352, under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe;

b) washing the resulting hybrid under conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe; and

c) detecting said hybrid.

111. (New) A method of detecting HIV-2 retrovirus nucleic acid in a biological sample, said method comprising:

a) contacting said sample with an HIV-2 specific probe under hybridization conditions selected from the group consisting of hybridization conditions of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe, wherein said probe comprises an HIV-2 nucleic acid molecule, which hybridizes to HIV-2ROD genomic DNA deposited with the CNCM as deposit no. I-352, under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the probe,

20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe;

b) washing the resulting hybrid under conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe; and

c) detecting said hybrid.

112. (New) A method of detecting HIV-2 retrovirus nucleic acid in a biological sample, said method comprising:

a) contacting said sample with an HIV-2 specific probe under hybridization conditions of 42°C in the presence of an aqueous solution comprising 50% formamide in 5X SSC buffer and 0.1% SDS, wherein said probe comprises an HIV-2 nucleic acid molecule which hybridizes to HIV-2ROD genomic DNA under stringent hybridization conditions of 42°C in the presence of an aqueous solution comprising 50% formamide in 0.1% SDS/5X SSC buffer;

b) washing the resulting hybrid under conditions of 65°C in a buffer containing 0.15% SDS/0.1X SSC; and

c) detecting said hybrid.

113. (New) A method of detecting HIV-2 retrovirus nucleic acid in a biological sample, said method comprising:

a) contacting said sample with an HIV-2 specific probe under hybridization conditions selected from the group consisting of hybridization conditions of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe,

wherein said probe comprises an HIV-2 nucleic acid molecule obtained from nucleotides 1-380 of the U3/R region of HIV-2, nucleotides 1-1566 of the *gag* gene of HIV-2, nucleotides 1114-1524 of the *gag* gene, nucleotides 1-405 of the *gag* gene, nucleotides 406-1155 of the *gag* gene, or nucleotides 1-2673 of the *env* gene of HIV-2ROD genomic DNA deposited with the CNCM as deposit no. I-352, and

wherein said probe hybridizes to HIV-2ROD genomic DNA under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe;

b) washing the resulting hybrid under conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe; and

c) detecting said hybrid.

114. (New) A method of producing an HIV-2 specific hybridization probe for HIV-2 retrovirus nucleic acid, said method comprising:

a) preparing a nucleic acid insert, which hybridizes to HIV-2ROD genomic DNA deposited with the CNCM as deposit no. I-352, under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the insert, 20°C below the melting temperature of the insert, and 3°C below the melting temperature of the insert;

b) introducing the insert into a vector;

c) introducing said vector into a competent cellular host; and

d) recovering the DNA recombinants.

115. (New) A method of producing an HIV-2 specific hybridization probe for HIV-2 retrovirus nucleic acid, said method comprising:

a) preparing a nucleic acid insert, wherein said insert is obtained from nucleotides 1-380 of the U3/R region of HIV-2, nucleotides 1-1566 of the *gag* gene of HIV-2, nucleotides 1114-1524 of the *gag* gene, nucleotides 1-405 of the *gag* gene, nucleotides 406-1155 of the *gag* gene, or nucleotides 1-2673 of the *env* gene of HIV-2 or a fragment thereof, and wherein said insert hybridizes to HIV-2ROD genomic DNA deposited with the CNM as deposit no. I-352, under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the insert, 20°C below the melting temperature of the insert, and 3°C below the melting temperature of the insert;

b) introducing the insert into a vector;

c) introducing said vector into a competent cellular host; and

d) recovering the DNA recombinants.

116. (New) A method of detecting HIV-2 retrovirus nucleic acid in a biological sample, said method comprising:

a) contacting said sample with an HIV-2 specific probe under hybridization conditions of 42°C in the presence of an aqueous solution comprising 30% formamide in 5X SCC buffer, 0.1% SDS, wherein said probe comprises an HIV-2 nucleic acid molecule which hybridizes to HIV-2ROD genomic DNA under nonstringent conditions of 42°C in the presence of an aqueous solution comprising 30% formamide in 5X SCC buffer and 0.1% SDS;

b) washing the resulting hybrid under conditions of 50°C in an aqueous solution comprising 2X SSC buffer and 0.1% SDS; and

c) detecting said hybrid.